



Water Sanitation and Hygiene (WASH) Training Manual for Schools with Rooftop Rainwater Harvesting Systems



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Acknowledgements

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1. Introduction

International Relief and Development (IRD, USAID/OFDA) produced the school training manual for Zimbabwean schools benefiting from rainwater harvesting systems. The purpose of this manual is to educate primary school students about rainwater harvesting as a viable option for supplying water to schools in Zimbabwe and **w**ater, **s**anitation, and **h**ygience (WASH) issues in general.

1.1 Why this manual?

In 2009, IRD began implementing the USAID/OFDA funded Peri-Urban Rooftop Rainwater Harvesting (PROOF) Program as a response to the cholera outbreaks in the high density areas surrounding Harare. From 2009-2011, IRD constructed more than 700 rainwater harvesting systems for use by households and primary schools. This manual is designed as a tool for teachers at schools benefiting from the program to educate their students on the usage and care of the rainwater harvesting system. The manual also addresses critical water, sanitation, and hygiene issues that play an important role in students' health and well-being.

1.2 How to use this manual?

While the IRD WASH manual can be used as a complement to the environmental science, home economics, and social studies curricula, it is best implemented as a whole package in and of itself. To this end, students will have a focused introduction to water, sanitation and hygiene (WASH) issues. The sessions progress in a logical manner that first allow students to examine their current conditions and works backwards to identify sources of disease and preventative measures that can be taken to ensure good health. Each of the thirteen sessions starts with a teacher information sheet to provide the teacher with background information for the session. Ideally, the sessions will be implemented sequentially, once a week, during a thirteen-week period. This time frame will give pupils enough time to process the information between sessions and develop an interest in the subject matter.



1.3 Toolkit Content

A toolkit has been developed as a companion document to the WASH manual. Instructions for conducting activities using each tool can be found in the toolkit.

The contents of the toolkit include:

Item	Details of what the teacher needs
Ronaldo's story	One A4 paper
Ronaldo's messages	One A4 paper
Ronaldo's Pictures	Thirteen A4 papers
Story without an ending pictures	Nine A4 papers
Water chain pictures	Five A4 papers
Tendai the Investigator Story	Two A4 papers
Contamination quiz game	One A4 paper
Water source pictures	Four A4 papers
Hygiene passport	One A4 paper
F-diagram pictures	Multiple pictures on three A4 papers
Environmental hygiene pictures	Four A4 papers





2. Methodology

2.1 Manual Development

A collaborative process shaped the development and imagination behind this manual. Stakeholder participation included informal discussions with school heads, directed focus group discussions with teachers, and informal meetings at the Ministry of Health and United Nations Children’s Fund (UNICEF). These insights helped shape the manual which was then tested at various grade levels in one primary school. Following the testing sessions, the document was again modified to emerge in its current form.

2.2 Participatory Tools and Techniques

The school training manual utilizes participatory teaching tools and techniques such as song, drama, poems, competition and demonstration. These tools help to engage students, enabling them to become active participants in their own education. Using this methodology will assist pupils to retain the information longer and participate in a way that is meaningful. Participatory teaching techniques involve a style of facilitation that encourages play and values students’ insights regardless of whether they are right or wrong. Thus, facilitation of activities identified in the manual requires additional energy and deviation from standard teaching styles. Ultimately, these tools and techniques will be rewarding for both teachers and students as knowledge grows and behavior change is realized.



2.3 Branding

Branding is best described as collective association of an image with an idea. The School Training Manual employs branding through a participatory character named Ronaldo. He is a soccer player who has taken a very personal interest in water, sanitation, and hygiene issues. With each module there is an image of Ronaldo doing an activity related to the session's theme. In addition, each module contains a message from Ronaldo. This structure allows students to associate a positive role model with the performance of water, sanitation, and hygiene behaviors. Ronaldo also serves as a common thread to connect and introduce the sessions. Thus, while students may forget the specific sessions they receive they will remember Ronaldo and at least some of his key messages. In the testing of this manual, the use of Ronaldo proved to be a great success. His appearance in each session is critical to the PROOF school training curriculum as a whole. It should be noted that 'Ronaldo' as a name for the soccer player, was chosen for the peri-urban context; it can and should be changed to fit a different environment.



Illustration 1: Introducing Ronaldo

2.4 Gender Considerations

In many places around the world, water, sanitation, and hygiene issues are inherently women's issues. Women are responsible for water collection, the cleanliness of the home and its surroundings, as well as the care and health of children. While this is the reality in many communities, men must also be encouraged to take an equal and active role in water, sanitation, and hygiene. When they do, communities will benefit from increased mobilization around these issues and a larger group of community advocates. A teacher can facilitate these behaviors in multiple ways: by acting as a positive role model him or herself, presenting positive role models in the community, discussing gender roles directly with students, assigning boys tasks that are typically reserved for girls, and presenting pictures or ideas to students that utilize flexible gender roles. When people are sensitized to these ideas at a young age, it increases the likelihood of sustained behavior change.

As this manual was developed, much thought was put into the idea of Ronaldo as an interactive character. However, the IRD team struggled to identify a female role model that is universal to students in both rural and urban environments. For this reason, there is no interactive female figure to complement Ronaldo. To confront this issue the manual presents ideas and pictures of women in empowering roles such as the headmistress of a school. Ronaldo's interest in water, sanitation and hygiene issues also presents a contrast with typical norms in which men leave issues of this nature to women. As gender concerns arise over the course of the curriculum, teachers should feel free to engage their students in these issues in what will ultimately contribute to a more gender-sensitive school environment.



3. Session Plans

3.1 Session 1: Healthy Bodies, Happy People

Teacher Information Sheet

Why is health essential to a school child?

The World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”¹ The health of children who are in the progress of physical, cognitive, and social development is often fragile and must be nurtured by role models such as parents, community leaders, and school teachers. Thus, maintaining high standards of health will lead to increased student and school performance and a payoff for communities, and even countries, in the long run.

Why are water, sanitation, and hygiene issues important to a health curriculum?

Water, Sanitation, and Hygiene issues, known collectively as WASH issues, maintain an important role in any school health curriculum for three important reasons.

1. WASH challenges are universal to human existence and all students, no matter their age, receive exposure and can relate to these issues. For this reason, WASH education is relevant to all children and will build upon their existing knowledge.
2. Students act as important vehicles to transfer knowledge to their families and the wider community.

¹ WHO website. Accessed at <https://apps.who.int/aboutwho/en/definition.html>. August 1, 2011.



3. Behavior change can best be effected at a young age. Thus, the sooner students are able to engage with these issues, the more likely they will begin to practice positive behaviors that can continue through their lifetime.

Instructions: *This session introduces health as an issue that students should reflect on and work towards in their lives at school and home.*

Outline and Activities

Objectives:

1. Students understand the importance of health to their well-being.
2. Students receive an introduction to water, sanitation, and hygiene issues.

Time Allowance:

60 minutes

Materials:

Ronaldo the Soccer Master story [Refer to toolkit: 1.1 Ronaldo the Soccer Master Story], “Story without an Ending” Picture Collection, tape or sticky material (refer to toolkit).

Activities:

Icebreaker: Meet Ronaldo the Soccer Master! (15 minutes)

- ✧ Present students with the first picture of Ronaldo the Soccer Master [Refer to Toolkit: Illustration 1: Ronaldo playing soccer (with all the good moves)] and ask them what they like about him. Make a list of their responses on the board. Common answers will include: “He is strong” and “He runs fast.” Ask students how they think Ronaldo became strong and fast; try to direct the conversation towards health. Explain that Ronaldo maintains these characteristics because he is healthy. Pose the following question to students: What does health mean to you? Record their responses on the board. Ask a student to come before the class and read Ronaldo’s story, if the students are too young than you may read the story. After completing the story, explain that Ronaldo is a friend of the class that will appear in every session on rainwater harvesting and water, sanitation, and hygiene issues in schools. Ask students to keep his story in mind until the next session.

Activity 1: Story without an Ending (Grades 1-3) (30 minutes)

- ✧ You have three sets of pictures at your disposal;

Refer to the Toolkit

Illustration 14: Story without and ending - Story 1 - Litter in a field

Illustration 15: Story without and ending - Story 1 - Litter blowing into a stream

Illustration 16: Story without and ending - Story 1 - Women collecting water from a stream

Illustration 17: Story without and ending - Story 2 - Mango falling from a tree into feces

Illustration 18: Story without and ending - Story 2 - A child picking up the mango and playing with it

Illustration 19: Story without and ending - Story 2 - Child eating the mango

Illustration 20: Story without and ending - Story 3 - A mother wiping her baby’s bottom

Illustration 21: Story without and ending - Story 3 - A mother preparing food

Illustration 22: Story without and ending - Story 3 - A mother eating the food she has prepared



Each depicts a story without an ending. Attach each collection of pictures to the board. Ask the students to describe what is happening and aid them to think of the pictures as a sequence of events or a story that has not yet concluded. Probe students to propose an ending to the story or suggest some possible conclusions yourself. Pupils should understand that the story could conclude with either good or poor health for the characters.

- ⤴ For example, in the mango image collection a boy collected a mango from the ground that had fallen in feces. After playing with the mango, the boy is peeling it and ready to eat it. The story could conclude with the boy washing his hands and enjoying the mango in good health. In an alternative ending, the boy eats the mango as is and falls ill.
- ⤴ Explain to students that they are critical agents in their own health and have the ability to prevent illness. Empower students to believe this message! Explain to your pupils that these posters depict specific issues related to water, sanitation, and hygiene that will be explored in greater detail.

Activity 2: Drawing (Grades 1-3) (20 minutes)

- ⤴ Conclude the session by asking students to draw a picture of themselves doing a healthy activity. Post pictures around the classroom so that students can be reminded of healthy behaviors until the next session.

Activity 3: Story without an Ending (Grades 4-7) (45 minutes)

- ⤴ You have three sets of pictures at your disposal;

Refer to the Toolkit

Illustration 14: Story without and ending - Story 1 - Litter in a field

Illustration 15: Story without and ending - Story 1 - Litter blowing into a stream

Illustration 16: Story without and ending - Story 1 - Women collecting water from a stream

Illustration 17: Story without and ending - Story 2 - Mango falling from a tree into feces

Illustration 18: Story without and ending - Story 2 - A child picking up the mango and playing with it

Illustration 19: Story without and ending - Story 2 - Child eating the mango

Illustration 20: Story without and ending - Story 3 - A mother wiping her baby's bottom

Illustration 21: Story without and ending - Story 3 - A mother preparing food

Illustration 22: Story without and ending - Story 3 - A mother eating the food she has prepared

Each depicts a story without an ending. Attach each collection of pictures to the board. Ask the students to describe what is happening and aid them to think of the pictures as a sequence of events or a story that has not yet concluded.

- ⤴ Divide the classroom into three sections and invite the students in each section to come and look at their respective set of pictures. Ask students in each section of the class to write a narration of the events in one set of pictures, adding their own unique ending.
- ⤴ Once the students have finished writing, invite volunteers to come before the class and read their stories. Make sure to take at least two volunteers from each section and pose health-related questions following their readings. It is okay if the students fail to produce health-related endings, but try to direct them toward this thought process. Pose questions such as, "Could the boy fall ill?", "How could the illness be prevented?", "What can you do when you're healthy?", "What can't you do when you're sick?" Explain to students that they are critical agents in their own health and have the ability to prevent illness. Empower students to believe this message! Explain to your pupils that these pictures depict specific issues related to water, sanitation, and hygiene that will be explored in greater detail.



3.2 Session 2: My Water Sources

Teacher Information Sheet

What are common school and household water sources?

- Tap Water
- Boreholes equipped with hand pumps or submersive electric pumps
- Tanks provided by NGOs
- Wells equipped with elephant pumps
- Rainwater harvesting systems
- Rivers
- Dams
- Streams

How to distinguish between clean and contaminated water?

- Clean water comes from a protected water source.
- Clean water can come from an unprotected water source, but it must be treated.

How to distinguish between protected and unprotected water sources?

- A protected water source is closed and well covered
- An unprotected water source is open to the elements

What are common sources of clean drinking water?

- Protected wells
- Boreholes
- Tap Water

What is water mapping?

Water mapping serves as an exercise that encourages students to think about their water sources at home and within the wider community. This activity motivates students to think about the geographical layout of the community and the importance of clean water sources to all households within. Students at higher grade levels might also be able to perceive how unequal distribution of resources can affect the quality of life and health of their classmates.



Outline and Activities

Objectives:

1. Students can identify their water sources at school and at home.
2. Students understand the difference between protected and unprotected water sources.

Time Allowance:

60 minutes

Materials:

Chalk, flip chart paper, markers or pens

Activities:

Icebreaker: Ronaldo Can Distinguish between Protected and Unprotected Water Sources (15 minutes)

- ❖ Introduce the second image of Ronaldo [Refer to Toolkit: Illustration 2: Ronaldo at different water sources (protected v. unprotected water sources)] to students. In this picture, he demonstrates the difference between protected and unprotected water sources. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: 1.2 Ronaldo's Messages - My Water Sources]

Activity 1: Group Work and Walkabout (Grades 1-3) (30 minutes)

- ⤴ Organize students into groups and ask each group to write down all the school water sources they can think of. They should only need a couple minutes to complete this task.
- ⤴ Next, take the class into the school yard to identify all the available water sources. Once you have returned to the classroom, ask students what water sources they saw. Write a list on the board. Continue by questioning pupils about where they get water from when they're at home. Write a secondary list on the board. You should have two lists titled "Water Sources at School" and "Water Sources at Home". Return to these lists and ask students if the water is dirty or clean and how they know. Based on this discussion, draw up a third list titled "Drinking Water Sources". Explain that drinking water must always come from a protected water source or be treated. The next session will cover water treatment techniques. Ask students to list protected and unprotected water sources and write them on a flip chart to be displayed until the next session.

Activity 2: Song (Grades 1-3) (15 minutes)

- ⤴ Sing the following song to students and ask them to join you (Ndebele and Shona versions are listed below).

Ndebele Version

Zizwe zonke zalo umhlaba
Wozani libone la manzi
Zizwe zonke zalo umhlaba
Wozani libone la manzi

Lamanzi asi lungele sonke
Ahlanzekele ukunathwa ngempela
Lamazi asi lungele sonke
Ahlanzekele ukunathwa ngempela

Zizwe zonke zalo umhlaba
Wozani libone la manzi
Zizwe zonke zalo umhlaba
Wozani libone la manzi

Lamanzi asi lungele sonke
Ahlanzekele ukunathwa ngempela
Lamazi asi lungele sonke
Ahlanzekele ukunathwa ngempela



Shona Version

Mativi mana ose enyika
Uyai muone iyi mvura
Mativi mana ose enyika
Uyai muone iyi mvura

Iyi mvura yakanaka
Yakachena kuimwa
Iyi mvura yakanaka
Yakachena kuimwa

Mativi mana ose enyika
Uyai muone iyi mvura
Mativi mana ose enyika
Uyai muone iyi mvura

Iyi mvura yakanaka
Yakanaka, kuimwa
Iyi mvura yakanaka
Yakachena kuimwa

Activity 3: Water Mapping (Grades 4-7) (30 minutes)

- ⤴ Organize students into groups and ask each group to write down all the school water sources they can think of. They should only need a couple minutes to complete this task.
- ⤴ Next, take the class into the school yard to identify all the available water sources. Once you have returned to the classroom, ask students what water sources they saw. Write a list on the board.
- ⤴ Divide the class into groups according to the neighborhoods where they live. Ask the students to draw a map on a flip chart or piece of notebook paper that includes the following elements: their homes, roads, places they visit at least once a week, and all the water sources available. Once students complete their map, ask them to present to the class.
- ⤴ Pose the following questions to each group of students while referring to their map: “Where do you retrieve water?” They can list multiple sources. Next, ask what they do with the water from each source? Is it dirty or clean? How do they know? Where do they get drinking water from? Make sure to reiterate the difference between protected and unprotected water sources. Ask students how they can prevent contamination of the water at each point on the map.



Illustration 2: Student water mapping

3.3 Session 3: Clean Water Requires Care

Teacher Information Sheet

What is a water chain?

A water chain depicts the process of household water collection from the water source to water disposal. It acts as a useful tool for students to think about potential water contamination at every point of water use.

How can water contamination be prevented at each point in the water chain?

1. Water source
 - ⤴ Water source should be protected.
 - ⤴ The area around the water source should be kept clean and free of dirt.
2. Water Collection
 - ⤴ Hands should not touch the water.
3. Water Transport
 - ⤴ Water should be transported in a clean container.
 - ⤴ Water should be transported in a covered container.
4. Water Storage
 - ⤴ Water should be stored in a clean jerry can; if a jerry can is not available a bucket may be used.
 - ⤴ Where a bucket is used, it should always be kept covered.
 - ⤴ Water should be accessed using a device such as a clean cup.
 - ⤴ Hands should not touch the water.
5. Water Disposal
 - ⤴ Water should be disposed of in a location where children cannot play in it.
 - ⤴ Water cannot stand in the household compound.

What are some water disinfection/treatment methods?

1. Aqua tabs: Add one tablet to 20-25 liters of water or one jerry can.
2. WaterGuard: Use the lid of the WaterGuard container as your unit of measurement. Add one lid of WaterGuard to 20 liters or one jerry can of clear water. Shake well or stir the water and then cover and wait 30 minutes before drinking. If water is visibly dirty, filter it through a clean cloth then add two lids to 20 liters of water. Then follow the same process as above.
3. Boiling: Bring water to a roaring boil for three minutes and store in a closed container.



Instructions: *Students in grades 1-3 will participate in activities 1&3; students in grades 4-7 will participate in activities 2&3.*

Outline and Activities

Objectives:

1. Students understand how water sources become contaminated.
2. Students can cite a variety of ways to prevent contamination.
3. Students practice water disinfection.

Time Allowance:

60-90 minutes

Materials:

Contamination quiz materials, aqua tabs or WaterGuard, one jerry can full of water, one liter of water in a transparent container

Activities:

Icebreaker: Ronaldo Disinfects Water! (15 minutes)

- ❖ Present the third image of Ronaldo [Refer to Toolkit: Illustration 3: Ronaldo disinfecting water with Water Guard] to students. In this picture, he demonstrates how to disinfect water. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: 1.2 Ronaldo's Messages - Clean Water Requires Care]

Activity 1: Water Chain Discussion and Drawing (Grades 1-3) (30 minutes)

- ⤴ The water chain depicts the chain of events from the water source to water disposal at home. Present these pictures:

Refer to the Toolkit

Illustration 23: Water chain : A woman at a borehole

Illustration 24: Water chain : A woman collecting water at the borehole

Illustration 25: Water chain : A woman transporting water to her home

Illustration 26: Water chain : Water storage in the home

Illustration 27: Water chain : Water disposal in the home

to the students and ask them to draw a similar water chain starting with where their mothers get water and ending with how they dispose of it. After the students have drawn their own pictures, return to the water chain pictures and ask students how water can become contaminated at each point. Discuss with the students how they can prevent contamination and write a list on the board.

Activity 2: Contamination Quiz Game (Grades 4-7) (45 minutes)

- ⤴ Post the pictures of the water chain on the wall. Ask students to examine the pictures in detail and then ask for ten volunteers who want to be part of a quiz game. The rest of the class will observe.



Divide the volunteers into two teams. Read the following quiz game description and rules for the class.

“We are going to play the contamination quiz game! The goal of this game is to identify how water can be contaminated at every point we have access to it. You will begin by looking at picture one. I will read a statement about water contamination that relates to that picture. The team leader will discuss with his team mates. Once the team decides if the statement is true or false, they will bang their hand on the desk. For every correct answer a team gets one point. We will do the same thing for pictures two, three, and four. The winning team will be considered our class’s water contamination experts. Let the game begin!”

Make sure to do a practice round with the children to assure they have understood the game. Try something easy like “I am a teacher and my name is Mrs. X.”

Once you have finished the game, return to the pictures on the board and ask your pupils to make suggestions about how they can prevent contamination at each point in the water chain and how to dispose of dirty water effectively.

Activity 3: Water Disinfection Demonstration (Grades 1-7) (30 minutes)

- ⤴ Students will experiment with water disinfection via
- ⤴ WaterGuard or aqua tabs. Explain the directions to students and ask for volunteers who can come and demonstrate. Make sure students write down the directions in their notebooks.



Illustration 3: Ronaldo using WaterGuard

3.4 Session 4: Rain, Rain Come Again

Teacher Information Sheet

Why rainwater harvesting?

Rainwater provides a safe, and underutilized, alternative to traditional ground water sources. The latter can easily be contaminated by human, industrial and animal waste or unusable due to salinity, arsenic, or fluoride. Rainwater harvesting provides a viable, low-cost method of water collection and storage that can be used in both urban and rural settings in Zimbabwe. Rainwater harvesting systems deliver a clean and reliable source of drinking water in the rainy season when diarrhoeal diseases are endemic, and if managed properly, a rainwater storage tank will serve as a dependable drinking water source throughout the dry season.

How does a rainwater harvesting system work?

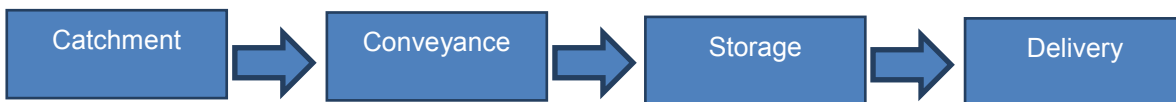
In Zimbabwe most residential houses and classroom blocks have solid roofs made out of asbestos cement or galvanized iron sheets. In a rainwater harvesting system, the roof acts as catchment area for rainwater. Rainwater falls onto the roof of a building and collects in a gutter attached to the side of the roof.

The gutter directs the rainwater to a downpipe where it is then deposited in a tank.

Before the water enters the tank it passes through a mesh screen that collects large particles from the roof such as leaves and sticks.

The IRD rainwater tanks for schools hold 30,000 liters of water that can be accessed via the tap.

A filter for small particles is attached to the tap and the rainwater will pass through this device before collection by water users.



What are the parts of the system?

- The roof acts as the main catchment device for harvesting the rainwater.
- The gutter, part of the conveyance system, collects the rainwater and directs it to the downpipe.
- The down pipe directs the water into the tank.
- The basket serves as the primary filtration device for large particles such as leaves, sticks, etc. that can collect on the roof.
- The tank stores up to 30,000 liters of rainwater.
- The overflow allows excess water to drain from the tank.
- The filter eliminates small particles and pathogenic bacteria before the water is dispensed.
- The tap allots the water for consumption.
- The drain box collects waste water.

- Depending on the design of the tank roof, the tank can be provided with a net. The net prevents entry of small insects into the tank

How can rainwater contamination be prevented?

The rainwater harvesting system requires simple upkeep and maintenance in order to assure safe and consistent clean water supply.

1. The roof should be cleaned regularly and kept free of dust, paper, small plastic balls, and birds' nests. Overhanging branches should be removed to prevent contamination by bird waste.
2. The gutter must also be free of invasive particles.
3. The basket needs to be emptied regularly.
4. The exterior of the tank must be kept tidy and cleaned regularly.
5. Teachers and school administration must take measures to prevent against vandalism of the tap, filter, and drain box.
6. The drain box must also be kept free of dirt and large particles.
7. Students cannot play with or poke holes in the net and should not remove the strings.

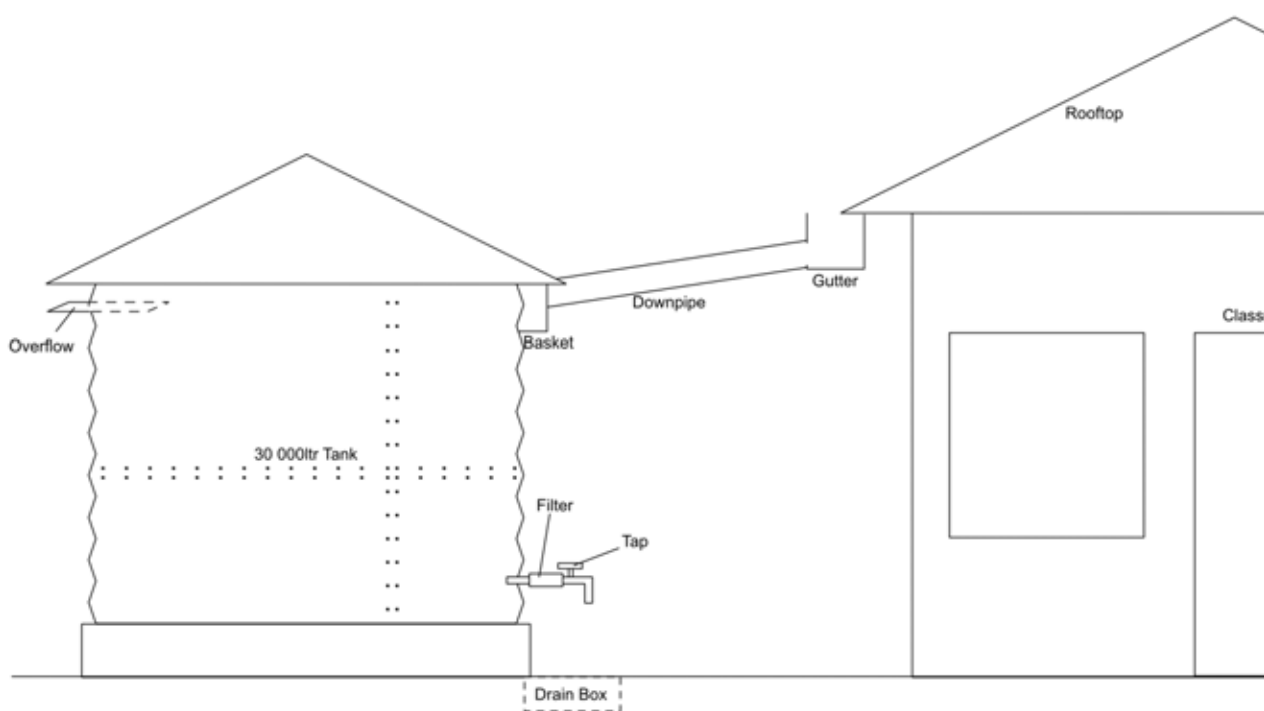


Illustration 4: A typical rainwater harvesting system

Outline and Activities

Objectives:

1. Students understand that rainwater is clean water.
2. Children learn that rainwater harvesting is one method to prevent the spread of diarrhoeal diseases.
3. Students learn about the parts of the rainwater system.

Time Allowance:

60-90 minutes

Materials:

Water source drawings (from toolkit), flip chart, puzzle pieces (from toolkit), scissors

Activities:

Icebreaker: Ronaldo Uses a Rainwater Harvesting System! (15 minutes)

- ❖ Present the eighth image of Ronaldo [Refer to Toolkit: Illustration 8: Ronaldo with a rainwater harvesting system] to students. In this picture, he stands next to a rainwater harvesting system. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: Ronaldo's Messages: Diseases Can Be Prevented]

Activity 1: Picture Parade and Mini-Lecture (30 minutes) (Grades 1-7)

- ⤴ Hang pictures of natural water sources on the board. These pictures include: a rainstorm, a dam, a river, and a spring in the ground.

Refer to the Toolkit

- Illustration 28: Water Source - A stream
- Illustration 29: Water Source - A dam/lake
- Illustration 30: Water Source - A river
- Illustration 31: Water Source - A rain storm

Push the desks back and ask students to stand and line up behind the picture that they think has the cleanest water. Allow for a bit of scrambling. Once everyone has chosen a place to stand, go through each water source and ask the students behind it to explain why they made the choice they did. Explain why rainwater is the most reliable clean source of all the ones pictured. You can then begin to explain that the tanks they see or will see in the school yard employ a technology that allows them to harvest rainwater and use it for drinking

Activity 2: Puzzle Activity (30 minutes) (Grades 1-7)

- ⤴ Divide the class into groups and distribute one set of puzzle pieces to each.

Refer to the Toolkit

- Illustration 32: Parts of the tank drawn out like puzzle pieces
- Illustration 33: Parts of the tank drawn out like puzzle pieces

Ask the students to assemble the puzzle pieces to form a rainwater harvesting system. After the assembly is finished, invite one of the groups that understood the activity and completed their puzzle to come to the



board and present. Make sure to identify each puzzle piece, what it's called, and what role it plays in the rainwater harvesting system.

Activity 3: Walkabout (15 minutes) (Grades 1-7)

- △ Take your class outside to observe the tanks. Ask the students to identify each part as they did in the previous exercise. Go through the components systematically in the way the collection process actually happens. As students identify the components, explain how contamination can occur. Finally, ask if the students have questions. Make sure to leave one of the assembled puzzle pieces on the board until the next session.



3.5 Session 5: We Are Water Warriors

Teacher Information Sheet

Who is the water for?

IRD constructed the rainwater harvesting systems at schools with the intention of providing a clean water source for all students and employees of the school.

What are the roles of the rainwater harvesting system stakeholders?

Headmaster/Headmistress' Role

The school head plays an integral role in the oversight of the rainwater harvesting system. He/she must understand the technology behind the system and the maintenance requirements, thereby serving as the point of contact for questions and concerns from teachers and parents. Moreover, the school head should supervise the system maintenance to be carried out by the school caretakers.

Teacher's Role

As an educator and role model for students, the teacher should educate his/her students about the rainwater harvesting system and dispel any myths or misconceptions the students hold. The teacher will also monitor student's water consumption assuring they are not using the water for play. Finally, the teacher will discipline his/her students in the event that the tank or jerry cans are tampered with.

Caretaker's Role

The caretaker(s) maintains the rainwater harvesting system by regular cleaning of the rooftops, emptying the basket, keeping the tank and its surroundings tidy, and monitoring any changes to system functioning. Caretakers should report any leaks and missing or broken pieces to the school head.

Student's Role

Students play a participatory role in the protection and care of the tank. They should be instructed on the "dos" and "don'ts" of the system and serve as peer educators for other students who are abusing the system.

What parts of the tank are commonly misused by students?

1. Jerry Cans: The tap on the jerry can is delicate and students should use a gentle touch when accessing the water.
2. Nuts: Students remove the nuts from the tank.
3. Drain box: Students muddy the drain box by playing nearby.
4. Tap: Students tamper with the tap by playing with the water.
5. Tank: Students vandalize the tank and make it dirty and



Illustration 5: Different components of a tank setup



dusty.



Illustration 6: A tank in a bad state (Source UNICEF Maldives, Training Manual, 2008)



Illustration 7: A tank in a good state (Source UNICEF Maldives, Training Manual, 2008)

Outline and Activities

Objectives:

1. Students understand who the key players are in the rainwater harvesting scheme.
2. Students understand their role in preventing rainwater contamination.

Time Allowance:

60 minutes

Materials:

Paper, chalk

Activities:

Icebreaker: Ronaldo Understands Everyone's Roles and Responsibilities! (15 minutes)

- ⤴ Present the ninth image of Ronaldo [Refer to Toolkit: Illustration 8: Ronaldo with a rainwater harvesting system.] to students. In this picture, he stands next to a rainwater harvesting system. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: Ronaldo's Messages: We Are Water Warriors]

Activity 1: Mini-discussion (30 minutes) (Grades 1-7)

- ⤴ In this activity you will guide students to think about who plays a role in the rainwater harvesting system. Divide pupils into groups and assign them the task of answering the questions below. Each group should present their responses to the class. Following the presentations, you will identify the correct answers and lead the students in a discussion about the roles and responsibilities of all people at the school.
 1. Can the headmaster/mistress drink the rainwater?
 2. Is the headmaster/mistress responsible for cleaning the tank?
 3. Who should make sure the system is working?
 4. Can teachers drink the water?
 5. Should teachers supervise students' use of the water?
 6. Is the groundskeeper the only person responsible for the protection of the tank?
 7. Should students report misuse of the tank to their teachers?
 8. Do students play a role in protecting the tank?
 9. Should teachers monitor how much water their class uses?
 10. Does everyone at the school have a role to play in rainwater harvesting?



Activity 2: Walkabout/ Scavenger Hunt (Grades 1-7) (30 minutes)

△ In this activity, students will work together as a class. Present the students with a list of clues that will help them identify a part of the rainwater harvesting system. It may be helpful and more interesting to take the students out to the tank and read the clues. Once the students have detected the object you should explain why it is important to the rainwater harvesting system and how students should pay special attention to the object's care and protection. Make sure to give pupils the opportunity to ask questions.

1. Go to the big and round, and high up off the ground. Choose any of these places. From here you look down. Grey in color, long in length; from this place the water flows. (tap)
2. Square and bare, nice and clean. It touches the ground, and holds the water in. (run-off box)
3. There are many of these, too many to count. Sticking out from low to high, be careful you don't want to prick your eye, or let it come too loose. (nuts)
4. Right in front of our little eye, next to the desks, but not in a sty. This is where we quench our thirst during lessons. (jerry can)
5. Dark in color, round in shape; it can be quite easy to break! Water flows through here, and then the tap, before filling our bottles and containers. (filter)
6. Light like a feather, with lots of tiny holes. In this place the mosquitoes will never go! (net)

When you return to the classroom, ask the students to debrief on the objects they saw and their role in making sure each of these objects is in good shape. Make sure you encourage students' active role in this regard, tell the students that they should become "water warriors" fighting to make sure their water stays safe.



3.6 Session 6: Rainwater Harvesting Myths and Realities

Teacher Information Sheet

What are the advantages of the rainwater harvesting system?

- The physical and chemical properties of rainwater are often superior to those of groundwater or surface water.
- Rainwater harvesting provides a source of water at the point where it is needed.
- It is owner-operated and managed.
- It provides an essential reserve in times of emergency and/or breakdown of public water supply systems, particularly following natural disasters. If properly designed and managed, the systems will provide adequate drinking water throughout the dry season.
- The construction of a rooftop rainwater collection system is simple, and these systems can be built to meet almost any requirement.
- Rainwater cannot be contaminated by asbestos on the roof as asbestos is only harmful in powder form.
- All stakeholders can take an active role in the care and protection of the system.

What are the disadvantages of the rainwater harvesting system?

- Rainwater harvesting depends upon the frequency and amount of rainfall. Therefore it is not a dependable water source in times of prolonged drought.
- If the system is not properly managed and maintained water can become contaminated by animal waste (bird, bat, rodent, droppings) and vegetable matter (rotting leaves, fruit)
- If strict water management is not practiced, the system can fail to provide water through the dry season.

Instructions: *It is at the teacher's discretion whether this session should be used with younger students. Every teacher will know his/her class the best and will be able to judge whether students possess the critical thinking skills necessary for this activity.*

Outline and Activities

Objectives:

1. Students have the opportunity to express their concerns about the rainwater harvesting system.
2. The teacher dispels any myths about rainwater harvesting.
3. Students think critically about the advantages and disadvantages of rainwater harvesting.



Time Allowance:

60 minutes

Materials:

none

Activities:

Icebreaker: Ronaldo Drinks from the Rainwater Harvesting System! (15 minutes)

- ❖ Present the eighth image of Ronaldo [Refer to Toolkit: Illustration 8: Ronaldo with a rainwater harvesting system] to students. In this picture, Ronaldo drinks water from the tank. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: Ronaldo's Messages: Rain, Rain, Come Again?]

Activity 1: What would you do? Role Play (Grades 6-7) (60 minutes)

- △ Divide the class into groups of 4-5 pupils. Give each group a scenario (written below) and allow them to spend fifteen minutes preparing their role play. Students will then present their role plays for the class. Following each performance, make sure you ask questions about what took place and why they chose to end the role play the way they did. Make sure to include in your discussion the idea that many of the challenges in these role plays are ones that schools could face and that these are the realities of a rainwater harvesting system. Also, give other students in the class the opportunity to ask questions. Multiple groups can perform the same role play.
 1. Rainwater harvesting tanks are installed in your school and you have been enjoying the water for several months. Recently, a student in your class began telling others that they should not drink from the tanks because they are contaminated by asbestos from the roof. Students are now afraid to drink the water and it is going to waste. In your role play, develop a solution to this problem.
 2. Rainwater harvesting tanks are installed in your school and you have been enjoying the water for many months now. Recently, you notice that the tanks are missing some elements and you notice that the younger students are playing with and around the tank too often. In your role play, solve this problem. Make sure to include such pertinent characters as the younger students, the headmaster, and the grounds keeper.
 3. Rainwater harvesting tanks are installed in your school and you have been enjoying the water for almost a year. As head boy or girl, you have been instructed in tank maintenance in case the groundskeeper isn't available. You notice that the groundskeeper has not been taking proper care of the tanks and you worry that the water risks contamination. In your role play, come up with a solution to this problem. Make sure to include such pertinent characters as the groundsman, janitor, the headmaster, and other students.
 4. Rainwater harvesting tanks are installed in your school and you have been enjoying the water for many months. Dry season is approaching and you notice that the school authorities are using the water for watering the grounds instead of saving it for drinking. In your role play, come up with a solution to this problem. Make sure to include such pertinent characters as the groundskeeper, the headmaster, teachers, and other students.
 5. Rainwater harvesting tanks are installed in your school and you have been enjoying the water for several months. Recently, the tap is broken on two of the tanks and no one has come to do repairs. You inquire about this with the headmistress and she says the school



has no money to replace the taps right now. In your role play, come up with a solution to this problem. Make sure to include such pertinent characters as the headmistress, other students, members of the parent-teacher association, etc.



3.7 Session 7: Diseases Can Be Prevented

Teacher Information Sheet

What is diarrhoea?

Diarrhoea is characterized by the frequent passage of loose or watery stools resulting from gastrointestinal infection. It leads to the loss of body fluids and causes dehydration, which can be life-threatening to infants and young children. Diarrhoea is most common where water sources are open to contamination and when individuals do not practice good personal hygiene behaviors. In 2009, diarrhoea caused an estimated 1.5 million deaths of individuals over 5 years of age around the world. People suffering from diarrhoea should consume plenty of fluids. A salt and sugar solution is normally recommended in Zimbabwe, although only 35% of children under five with diarrhoea were utilizing this solution in the years from 2005-2009.²

What are the main diarrhoeal diseases?

^ **Cholera**

The U.S. Center for Disease Control and Prevention defines cholera as an “acute, diarrhoeal illness caused by infection of the intestine with the bacterium *Vibrio cholerae*³”. *Cholera affects between 3-5 million people each year and causes approximately 100,000 deaths. During the 2008-2009 cholera epidemic in Zimbabwe more than 98,000 cases were reported resulting in over 4,200 deaths*⁴. *The disease is characterized by intensive watery diarrhoea, vomiting, and leg cramps which can lead to severe dehydration and shock. While many people are infected with the bacterium, only 5% of those infected will exhibit the symptoms described above.*

Cholera results from water contamination via human fecal matter. Children and elderly adults are the most likely to risk death from the disease.

^ **Typhoid Fever**

This disease is caused by the bacterium Salmonella Typhi. It results from the consumption of food or drink contaminated by the feces or urine of infected people. Symptoms of the disease include diarrhoea, headache, malaise, fever, rose-colored spots on the chest and enlarged spleen and liver. Typhoid fever is common in the developing world where nearly 21.5 million cases occur each year.

^ **Dysentery**

Dysentery comes from the shigella species of bacterium. The disease manifests as diarrhoea in the form of rice watery stools with visible red blood or mucus. Additional symptoms include abdominal pain and fever. When left untreated, dysentery can lead to death.

What are the universal symptoms of diarrhoeal diseases?

The symptoms of diarrhoeal diseases vary in as much that the stools possess different characteristics and are accompanied by a host of other ailments such as fever, enlargement of organs, etc. However, diarrhoeal diseases also maintain some more general symptoms such as weakness of the body,

² UNICEF. Accessed at http://www.unicef.org/infobycountry/zimbabwe_statistics.html. August 18,2011.

³ CDC Website. Accessed at <http://www.cdc.gov/cholera/general/>. August 5, 2011.

⁴ WHO. Accessed at http://www.who.int/csr/don/2009_06_09/en/index.html. August 18, 2011.



exhaustion, and the frequent passage of loose stools (diarrhoea). Students should be able to identify these overarching symptoms as examples of both the warning signs and effects of the diarrhoeal diseases.

How can diarrhoeal diseases be prevented?

Diarrhoeal diseases can be prevented via simple precautionary measures including hand washing, proper preparation and protection of foods, consumption of clean and safe water, and good personal hygiene practices.

How to prepare sugar salt solution?

A simple salt and sugar solution treats diarrhoea by replenishing lost electrolytes. In Zimbabwe, oral rehydration therapy is commonly prepared using 750 ml of water or a typical cooking oil container. Pour clean water into a clean receptacle and add six level teaspoons of sugar. Then, add one half level teaspoon of salt and shake the container to assure the ingredients are mixed effectively.

Instructions: *Students in grades 1-3 will participate in activities 1&3, students in grades 4-7 will participate in activities 2&3. Remind students that sugar salt solution sachets are available in the store.*



Illustration 8: Sugar Salt Solution Testing

Outline and Activities

Objectives:

1. Students can identify cholera, typhoid, and dysentery as diarrhoeal diseases.
2. Students understand the basic symptoms of these diseases.
3. Students understand steps to prevention.

Time Allowance:

60-90 minutes

Materials:

Tendai the Policemen story, paper, sugar, salt, 750 ml of water, transparent bottle

Activities:

Icebreaker: Ronaldo Prepares Sugar and Salt Solution! (15 minutes)

- ▲ Present the fourth image of Ronaldo [Refer to Toolkit: Illustration 4: Ronaldo showing students how to prepare sugar salt solution] to students. In this picture, he demonstrates how to prepare sugar and salt solution. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: Ronaldo's messages: Diseases Can Be Prevented]

Activity 1: Tendai the Policemen Story (Grades 1-3) (30 minutes)

- △ In this activity students will investigate the ways to contract diarrhoeal diseases. You will read an interactive narrative [Refer to Toolkit - 1.6 Tendai the Investigator] to the students and they will make decisions that change the course of the story. After reading the narrative, pose the following questions to the students. Stop after every paragraph to ask questions and make sure the students have understood the content.

1. “Why happened to the people in Chipinge?”
2. “How did these people get sick?”
3. “How did their health change once the people got sick?”
4. “How did they treat the disease?”

As the teacher, you should explain that all the diarrhoeal diseases are contracted in the same way- through unclean water and food. It is not important to distinguish between the symptoms of the diseases at this grade level. Instead, make sure to add that with all these diseases sick people will lose fluids. Ask students if they can think of ways to prevent these illnesses. List all the preventive measures on a flip chart and display it somewhere in the class.

Activity 2: “I am the Investigator” Role Play (45 minutes) (Grades 4-7)

- △ Divide the classroom into groups of 8 and give each group of students the characters for a drama that they will develop. The drama will include the individuals below and should center on the theme of cholera. Remind the students that this is not meant to be a work of perfection, and to do their best in the time allotted. Students should have 10-15 minutes to develop their drama and another five minutes to perform the drama for others.

Character 1: Tendai the Investigator

Character 2: Nurse Tanaka

Character 3: The Chief

Character 4: Lester’s friend Tom

Character 5: The School Health Master

Character 6: Father of a sick child

Character 7: Mother of a sick child

Character 8: The sick child

After students have performed their drama, make sure to ask questions about each one. Try to direct the class to thinking about the causes of diarrhoeal diseases, the common symptoms, and easy preventative measures.

Activity 3: Preparation of Sugar Salt Solution (15 minutes) (Grades 1-7)

- △ Prepare the sugar salt solution recipe on a flip chart or board before the activity. Ask for student volunteers who would like to come to the front of the classroom to assist in the demonstration. Aid the students to make the solution, and offer to have them taste it. Make sure to remind students



that the proper proportions are critical and that it's easy to make at home. Once more, help the pupils to remember under what circumstances sugar salt solution should be used. (Put this in graphic form).



3.8 Session 8: How Do We Get Sick?

Teacher Information Sheet

What is the F-diagram and how does it work?

The F diagram is a visual representation of the transmission paths of diarrhoeal diseases from a sick person to a healthy one.

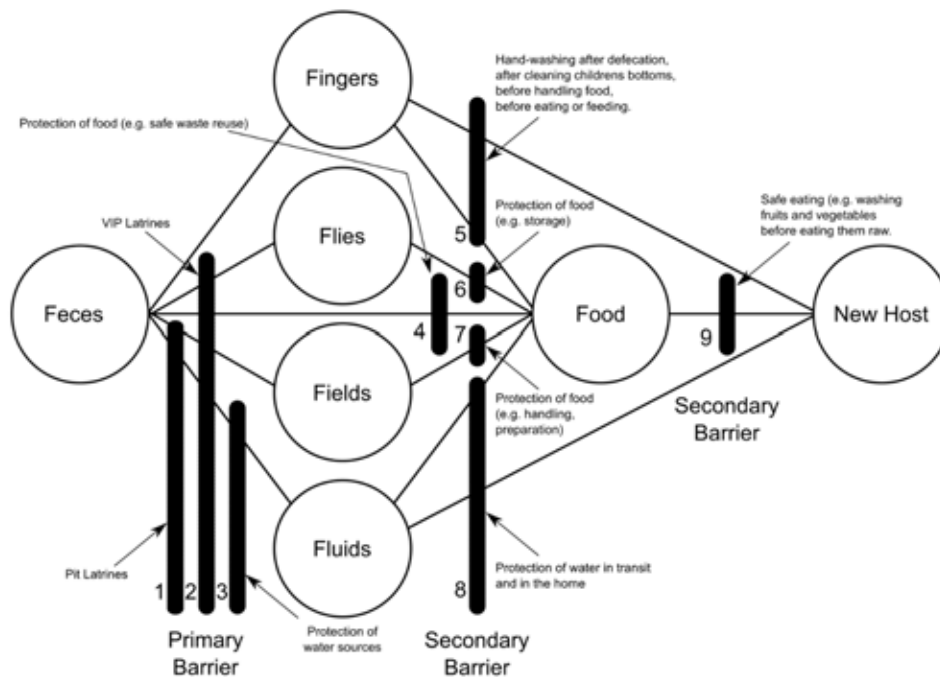


Illustration 9: F-Diagram

The F-diagram employs a mnemonic device to assist in the recall of the transmission paths of diarrhoeal diseases. Each transmission path is identified by a word starting with the letter F. They are: feces, flies, fields, fluids, fingers and foods. Diarrhoeal diseases develop from the spread of human feces via fluids such as water. Fields, another mode of transmission, can spread diarrhoeal disease via open defecation and subsequent human contact with feces. Fingers can spread disease if they are not washed and then touch the mouth or prepare food. Flies land on human excrement and can in turn make a home on your foods providing an additional transmission route. Finally, foods themselves can be contaminated if they are not prepared with clean hands or proper utensils.

The F-diagram serves as a useful tool to explain disease transmission to students. However, the information must be covered slowly and repeated many times to assure understanding.

Outline and Activities

Objectives:

1. Students make the link between unclean water and diarrhoeal diseases.
2. Students understand diarrhoeal disease transmission routes.



3. Students are exposed to the F-diagram.
4. Students learn how to prevent contamination of food and water.

Time Allowance:

60-90 minutes

Materials:

F diagram drawings from toolkit, pencils, pens, paper, chalk, flip chart paper, plastic bottle, wire or string, a bit of sugar or fruit

Activities:

Icebreaker: Ronaldo Uses a Latrine! (15 minutes)

- ✧ Introduce the fifth image of Ronaldo [Refer to Toolkit: Illustration 5: Ronaldo using a latrine] to students. In this picture, he uses the latrine. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: Ronaldo's messages: How Do We Get Sick?]

Activity 1: Plenary and Story-writing (Grades 1-7) (30-45 minutes)

- ✧ The discussion on diarrhoeal disease transmission should be undertaken with the class as a whole. It is very important that all the students understand the information you present on the F diagram. Begin by asking students to take out their drawing tools.
- ✧ Ask the students to draw a picture of a person with diarrhoea on the left hand side of their paper. Post a picture of a person with diarrhoea on the left hand side of the board and a picture of a healthy person on the right side. Instruct students to draw a picture of a healthy child on the right hand side of their paper as well.

- ✧ Pose the following question to students, "How does diarrhoea pass from the ill child to the healthy child?" Make sure to attain at least ten responses as you want to hear students preconceived notions about disease transmission in order to dispel them. For every correct answer, ask the students to draw in the image and post a picture on the board.

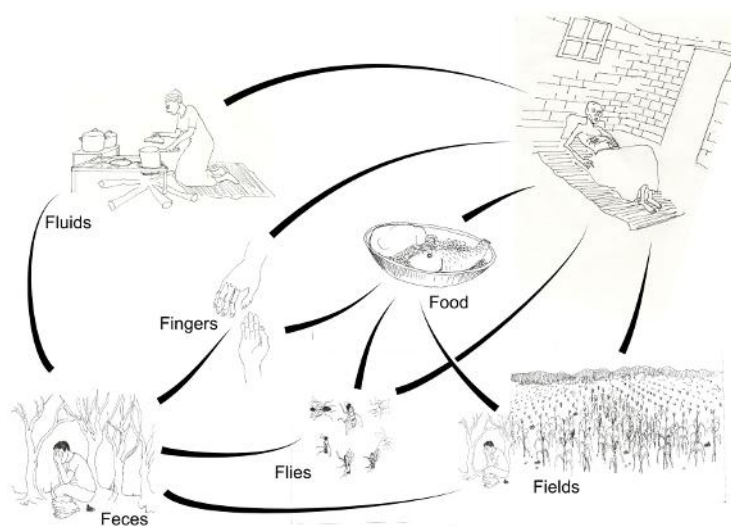


Illustration 10: Your F-Diagram should look something like this

- ✧ You will have six words or pictures that begin with the letter F. They are: feces, fields, fluids, fingers, food, and flies. Make sure to draw lines that connect the pictures. Your completed F-diagram should resemble the below.
- ✧ Go over the image on the board with the students. Pose questions such as, "Can you think of a situation in which feces enters the water we drink?" or "How does feces get in our food?" Make sure you are clear that diarrhoeal diseases are a result of the ingestion of germs from feces.



Ask students to look at the F diagram in their notebook and write a story about how the healthy child in the picture becomes sick. For grades 1-3, ask students to draw a story. Encourage students to share their stories with each other and invite volunteers to read or show their stories to the class.

Following this activity, you will ask students to think about how they can block the transmission routes in the diagram. Invite volunteers to come to the front of the room and pick out pictures from a grab bag. The pictures are: hands being washed, a child using a toilet, food that is being cooked, covered food, and protected water. Tell the class that these pictures represent ways to block the germs that make you sick. Ask the students to place their picture by which route they think it blocks.

After the students have placed their pictures, go over the results. Where the pictures are correct explain why. For those that are not, also explain why it was the wrong choice.

Activity 2: Poem (Grades 1-7) (10 minutes)

- ⤴ Read the below poem to the students and have them recite it as a group. Write the words to the poem on a flip chart and display it for the class until the next session.

Feces, flies, fields, fluids,
Don't forget fingers and foods!
Six F's for me and you
To remember that germs can spread
Quick and fast like a Cheetah Cat

Feces, flies, fields, fluids
Don't forget fingers and foods!
Six F's for me and you

We can stop the transmission paths
And make ourselves healthy and fat

Feces, flies, fields, fluids
Don't forget fingers and foods!
Six F's for me and you
Cover and cook our food, protect the water
Use the toilet and wash our hands
This is our quick and easy plan

Activity 3: Demonstration (Grades 1-7) (15 minutes)

- ⤴ You will teach students to construct a fly trap out of a plastic bottle. The instructions are below. Ask a couple of students to come before the class and demonstrate the construction. (Taken from the Hesperian Foundation's "Sanitation and Cleanliness for a Healthy Environment")

1. Cut the top part off of a plastic bottle.
2. Attach water or string to the bottle for hanging.
3. Put some sweet bait, like sugar or fruit, in the bottle.
4. Put the top back in the bottle upside-down.
5. Flies will fly in but will not be able to fly out.
6. When the bottle is full, empty it into a toilet.



3.9 Session 9: Good Sanitation Keeps Me Smiling

Teacher Information Sheet

What are common places people defecate?

- Latrines
- Fields
- Rivers
- Flush toilets

Why can open defecation cause harm?

Open defecation is a practice that puts the greater community at risk. When open defecation takes place feces are left uncovered and exposed to the elements. As a result, rains can wash the feces to water sources and subsequently contaminate them. Germs from feces can also be passed to members of a household via children, interaction with animals, or flies. Flies will breed and feed on feces where their hairy body and legs become contaminated. They subsequently contaminate food, causing illness in humans.

What is a Blair Ventilated Improved Pit (BVIP) latrine?

A BVIP is a closed pit toilet that reduces smells and flies. The BVIP is also the recommended technology in Zimbabwe. It is a ventilated pit latrine/toilet that is made of a slab that has two openings (squat hole and vent pipe), a super structure (for privacy) and a roof (weather protection). It is used like a bathroom to deposit fecal matter and urine. The BVIP latrine minimizes odor as wind blows across the top of a vent pipe and carried smells away. The shelter keeps the toilet dark so that flies in the toilet will move in the direction of the light at the top of the pipe and get trapped in a wire screen and die.

What are the advantages of a BVIP?

- It can be used as a bathroom.
- It will last for up to ten years, if properly constructed.
- When properly constructed, there will be no resulting odors
- Flies that enter the pit will die.
- It can be connected to a hand washing facility.

What should I know when constructing a BVIP latrine?

The BVIP latrine is the most commonly used latrine in Zimbabwe. It should be constructed approximately 10-15 meters from the kitchen (or rural dining/sitting room) and 30 meters from water sources. The BVIP latrine costs approximately \$200-250 dollars to construct (depending on the structure) and can be completed in one to two weeks. Typically, a trained latrine builder or mason constructs BVIP latrines.



What are the disadvantages of a BVIP latrine?

- If the shelter is not sufficiently dark, flies will not be attracted to the pipe and remain in the toilet.
- The vent pipe can be blocked by spider webs.
- If there is no roof to the shelter or the roof comes off, there is no fly control.
- It can collapse if the foundation is not properly constructed.
- Labor is needed for construction.
- It can produce odor if improperly situated.
- Poor communities may not be able to purchase cement and reinforcement materials.
- It can fill up quickly if the pit is shallow and not used properly.
- It can cause serious health risks if improperly situated (near water sources).

What upkeep is required for the BVIP latrine?

- The hole should be kept open when not in use.
- The shelter needs to be kept semi-dark.
- The toilet should be washed with soap and water at least once a week.
- Spider webs should be removed from the pipe weekly.
- Small children need to be accompanied to the toilet
- Chemicals cannot be put down the toilet.

What types of technologies are available as an alternative to the BVIP?

- Aqua Privé Latrine: This is a simple bucket latrine that can be constructed with local materials such as metal poles, local soil and grass or reeds.
- Trench Latrine: A spiral shaped latrine built using a trench with no door and made of plastics, grass, reeds, poles, and soil.
- Pit Latrine: The pit latrine is similar to the BVIP except that it has only one small vent pipe and is not necessarily dark inside. It is constructed with bricks or cement and local soil.

Instructions: *If you refer back to the diagram in this session, it will help students to make the connection between transmission routes and prevention. For all the subsequent sessions, the F diagram should be continually referred to.*



Outline and Activities

Objectives:

1. Students understand how sanitary conditions affect their health.
2. Students are familiar with the workings of the BVIP latrine.

Time Allowance:

75 minutes

Materials:

Fill in the blank activity from toolkit, Tinashe and the BVIP latrine story

Activities:

Icebreaker: Ronaldo constructs a latrine! (15 minutes)

- ⤴ Present the sixth image of Ronaldo [Refer to Toolkit: Illustration 6: Ronaldo constructing a latrine] to students. In this picture, he constructs a BVIP latrine. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: Ronaldo's messages: Good Sanitation Keeps Me Smiling]

Activity 1: Tinashe and the BVIP Latrine (Grades 1-7) (30 minutes)

- ⤴ Read the story below to students. Following the story, ask students probing questions about latrine use. Sample questions are also listed below. If you have a BVIP latrine at your school, take the children out to the BVIP latrine and discuss its components and proper use.

"Tinashe's family moved to Gweru because Tinashe's father was to begin work at a new job. They constructed a new home with two rooms for sleeping and a salon to entertain guests. However, Tinashe's parents forgot to budget for a latrine and when they arrived at their new home they realized they had no place to defecate. Tinashe's father instructed the family to defecate just a few meters from the house in a small field. After nearly a month, everyone in the family became ill and Tinashe stopped going to school."

1. What happened to Tinashe?
2. What made Tinashe sick?
3. How could Tinashe's family prevent his illness?
4. Could there be an alternative to the open defecation Tinashe's family practiced? (For example, sharing another family's latrine or budgeting for something less sophisticated than a BVIP latrine.)
5. What is a latrine? What is a BVIP latrine?
6. What are the advantages of a BVIP latrine? (Write students' response on the board).

Activity 2: Fill in the blank (30 minutes) (Grades 1-7)

- ⤴ Divide the class into groups of four to five students and assign them the fill in the blank activity.

Refer to Toolkit: 1.10 Fill in the Blank Activity



After students have completed their fill in the blank worksheet they should choose one representative to present to the class. Discuss each group's answers with the class and correct any errors. For the younger students, this activity could work better as a group question and answer. Write a list on the board titled "BVIP Latrine Tips" and together with the students create a list of maintenance activities that must be undertaken.



3.10 Session 10: I Wash, Wash, Wash My Hands

Teacher Information Sheet

How Can A School Encourage Hand Washing?

Hand washing is the simplest and most effective method for preventing the spread of diarrhoeal diseases. In the school set up, practicing hand washing can be challenging as running water and soap are often unavailable. However, each school head should put in every effort to set up hand washing stations within ten meters of a latrine. Where running water is unavailable, schools should have a plan for transporting water to a hand washing station and facilitating student's use. For example, where there is no running water a tippy tap can be utilized or a plan can be made in which students go to the bathroom together and assist each other in hand washing afterwards. Washing hands in a bowl of used water is ineffective.

How Can I Encourage Hand Washing in a Resource-Strained Environment?

In the case where no soap is available, ashes should be provided at the nearest water source and used in lieu of. Teachers should make every effort to encourage and reward good hand washing practices and serve as a role model in this regard.

What Are The Most Critical Times For Hand Washing?

- Before and after preparing meals
- After using the toilet
- Before eating
- After changing children's nappies

Instructions: *Students in grades 1-3 will participate in activities 1-2; students in grades 4-7 will participate in activities 1-3.*

Outline and Activities

Objectives:

1. Students understand the importance of hand washing and when it should be performed.
2. Students experiment with hand washing.

Time Allowance:

60-90 minutes

Materials:

Hot chilli pepper (dried or fresh), water, soap, bucket, towel

Activities:



Icebreaker: Ronaldo Washes His Hands! (15 minutes)

- ⤴ Present the twelfth image of Ronaldo [Refer to Toolkit: Illustration 12: Ronaldo washing his hands with soap] to students. In this picture, Ronaldo washes his hands. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: Ronaldo's messages: I Wash, Wash, Wash My Hands]

Activity 1: Chilli Hands Demonstration (20-30 minutes) (Grades 1-7)

- ⤴ It is likely that even the smallest students will be familiar with hand washing, thus the goal of this session is to demonstrate proper hand washing techniques. Ask for three volunteers to come before the class and demonstrate how they wash their hands. Have water, soap, basin, and a small towel ready. Ask these students when they wash their hands and why. Correct students whose hand washing skills or responses need improvement, make sure not to scold these children before the class. Tell the volunteers that since they have been such great volunteers they will also be able to participate in the chilli hands test.
- ⤴ Bring out some dried or fresh chilli pepper and have students rub it all over their hands. Now ask the students to wash their hands without soap, using just water. Students should show their hands to the class- they will look clean! Ask students to smell their hands and report to the class what they smell. Most students will report no smell.
- ⤴ Next, ask students to use their tongue and taste their palms where the chilli pepper was. The volunteers should report to the class what they taste. Students will taste the chilli pepper. Now, explain to the students that germs are like the chilli pepper and that often you cannot see or smell them on your hands, but they are there.
- ⤴ Finally, ask for a second group of volunteers to experiment with the chilli. Students will perform the same procedure as above except that instead of washing their hands with water only, they will use soap. Repeat the same procedure of reporting to the class. As a change from the above demonstration, students should report no chilli taste.
- ⤴ Demonstrate appropriate hand washing for the students and ask for more volunteers who would like to come up and try. Again remind the students that this activity demonstrates the importance of washing with soap and the presence of germs even when they are not visible.

Activity 2: The Mime Game (Grades 1-7) (25-45 minutes)

- ⤴ From the previous activity, students should understand how and why to wash their hands. However, an important component of hand washing was missing- the 'when'. Students need to know the appropriate time to wash their hands. In this game, students will reinforce their own knowledge and learn from each other when hand washing is crucial. Organize younger students into groups of 5-6 and ask them to make a miming performance of when they wash their hands. Students should sit down and think together of all the times they wash their hands and then come up with a dance, poem or song about it that includes miming.
- ⤴ The older students will also work in groups to write down a list of circumstances in which they wash their hands and perform poems or songs about it. Each group should write affirmative sentences on a piece of paper such as, "I wash my hands when I" Encourage your pupils to think of only the most crucial times for hand washing. Groups will share their songs or poems with the class and you should make a list on the board of the crucial times for hand washing.

Activity 3: Preparing a Hand Washing Plan (Grades 1-7) (15 minutes)

- ⤴ Ask students to assess the ease of hand washing at their school by posing questions such as, "Do we have access to soap?", "Do we have access to water/ running water?", "Is there a



designated place to wash our hands?” Based on the question and answer session, ask students to work in groups to create a list of the things they need for washing hands. Once they have created the list, students should place a star or check mark next to the materials they have available to them. Pose the following questions to students, “What is missing from our list?” and “What can we do to make sure everyone in the class can wash their hands after using the bathroom?” Do your best to come up with an action plan that the class can implement. For example, where there is no water pupils can bring an additional liter to class each day that will be used for hand washing.



3.11 Session 11: There Is a Proper Way to Dispose of Litter

Teacher Information Sheet

How can litter be disposed of?

Refuse can be disposed of by either burying or burning it. For the latter, trash burning should be done a safe distance from the house where children will not be suffocated by the smoke. Plastics and biodegradable material can be burned while glass must be disposed of in an alternative manner. In order to bury litter, households should dig two pits: one for combustibles such as papers and another for non-combustibles such as empty tins, bottles, etc. The combustible pit should be at least one and a half meters deep and two by two meters in width and length. By contrast, the non-combustible pit should be at least two meters deep and one by one meter in width and length.

What are the advantages of burying litter?

- It prevents flies from breeding on the refuse.
- It prevents unsightly situations due to crude dumping of refuse.
- It prevents diarrhoeal disease transmission.
- It prevents scavenging.

What are the disadvantages of burying litter?

- Litter can contaminate or spoil the immediate environment.
- In order to avoid contamination, litter must be buried a safe distance from the nearest water source.
- The risk of veld fires increases.
- Plastics are non-bio degradable.

What are the advantages of burning litter?

- Litter will not contaminate or spoil the immediate environment.
- The weight and quantity of refuse reduces.
- It destroys pathogens and other disease causing vectors.
- It prevents flies from breeding.
- The resultant ash is sterile (free from micro-organisms).
- Ash can be used to control fly breeding.

What are the disadvantages of burning litter?

- The smoke emits carbon dioxide causing air pollution and contributing to global warming.
- If not properly controlled, the fire could spread beyond its intended limits.
- Smoke can be a nuisance to humans due to uncontrolled burning.
- Non-combustibles are not affected by burning.

Outline and Activities

Objectives:

1. Students understand why litter should be disposed of properly.
2. Children learn proper litter disposal practices for their school and home.

Time Allowance:

45-60 minutes

Materials:

environmental hygiene pictures from toolkit, word search from toolkit

Activities:

Icebreaker: Ronaldo Burns His Litter! (15 minutes)

- ❖ Present the seventh image of Ronaldo to students. In this picture, Ronaldo burns his trash. Invite a student to read Ronaldo's message before the class. [Refer to Toolkit: Ronaldo's messages: Everyone Can Prevent Litter]

Activity 1: Picture Parade (Grades 1-7) (30 minutes)

- ▲ In this activity, students compare pictures of different home environments.

Refer to Toolkit

Illustration 43: Environmental hygiene picture 1

Illustration 44: Environmental hygiene picture 2

Illustration 45: Environmental hygiene picture 3

Illustration 46: Environmental hygiene picture 4

The pictures will look almost exactly the same, except one or two elements important in environmental hygiene will be missing. Ask students to perform the role of investigators and to study the pictures carefully. Have the students do this in groups of 6-8. Once the group has examined the pictures, ask for volunteers who can come in front of the class and stand in front of the picture where they would like to live. Pose questions about the students' choices and identify the differences in the pictures. Discuss these differences with the students and write good environmental hygiene practices on the board or flip chart. Title this list "Environmental Hygiene Tips." Some sample tips will include, "Protect your food from flies", "Bury trash or burn it", "Use a latrine or defecate in a safe space". Make sure to connect litter disposal to the issues discussed in the session on the F-diagram.



Activity 2: “Litter, Litter Everywhere” Song (Grades 1-3) (15 minutes)

- ^ Sing the following song to students and ask them to join you.

Dig, dig, dig the pits
1-2 meters deep
Throw, throw, throw your waste
Deep into the pits

Burn, burn, burn your waste
When there is no pit

Watch it go up in flame
Then there will be no remains

Dig, dig, dig a pit
Burn, burn, burn your waste
This is how it is done
Sanitation can be easy and fun

Activity 3: Word Search (Grades 4-7) (30 minutes)

- ^ Students receive the word search activity in which they are to pick out words relating to sanitation.

Refer to Toolkit

1.11 Word Search

Where a photocopier is not available, you can draw the word search on the board. Do one example with the class. Once students have identified all the words, discuss the relevant issues surrounding these words and their connections. For example, trash, bury and burn are some of the words listed in the word search. Explain that we can both burn and bury trash. Another word in the search is pit, and this is where trash should be buried and a match is what we use to start a fire. The end goal of this activity is for students to understand they have two options for trash disposal; they can bury or burn it.

3.12 Session 12: My Role in Good Hygiene

Teacher Information Sheet

Key Hygiene Practices for Students

- Bathing daily
- Brushing teeth once in the morning and once in the evening
- Combing hair daily
- The face should be washed daily
- Nails kept short and clean
- Hands should be washed after using the toilet and before and after cooking
- Washing clothes weekly
- Ironing clothes to prevent lice

What is a hygiene passport?

The hygiene passport is a living document that students can use to develop and monitor their hygiene behaviors. It provides an inventive alternative to typically dry discussions on personal hygiene. The passport consists of: a self-portrait, a personal hygiene agreement that each student establishes for him or herself, a map of the student's home including water sources, toilets, and cooking areas, and a time schedule that students can use to track their hygiene practices.

Instructions: *Students in grades 1-3 will participate in activities 1-3 & 5; students in grades 4-7 will participate in activities 1-2 & 4-5*

Outline and Activities

Objectives:

1. Students understand personal hygiene tasks they must undertake every day.
2. Students learn about environmental hygiene issues.

Time Allowance:

60-90 minutes

Materials:

Hygiene Passport, rocks, chalk, pens

Activities:

Icebreaker: Ronaldo Practices Good Hygiene! (15 minutes)



- ⤴ Present the eleventh image of Ronaldo [Refer to Toolkit: Illustration 11: Ronaldo practicing good hygiene behaviors] to students. In this picture, Ronaldo practices good hygiene behaviors. Invite a student to read Ronaldo’s message before the class. [Refer to Toolkit: Ronaldo’s messages: My role in Good Hygiene]

Activity 1: Anokosha’s Story (20 minutes) (Grades 1-7)

- ⤴ In this activity, you will read the story of Anokosha, a student in grade 5, who is always getting sick and not popular with the students. After you read the story to the students, ask them to describe what Anokosha can do to be more healthy and popular with her peers. Make sure students can identify the important hygiene behaviors that are missing in Anokosha’s story. As the hygiene behaviors are drawn out of the conversation, write them on the board under the heading “Good Personal Hygiene.”

“Anokosha attends fifth grade; she is in Mrs. Nyamba’s class. Anokosha’s parents are both school teachers at the high school nearby. They are always advising Anokosha to practice good hygiene behaviors but Anokosha is lazy and refuses. In the morning, Anokosha wakes up and goes to the latrine. She then puts on her clothes and proceeds to have a light breakfast. Anokosha is often sick and misses many school days. When she attends school, the other students tease her and say that she smells. Despite Anokosha’s best efforts she cannot make friends with the other students.

Activity 2: “Guess What?” Game (15 minutes) (Grades 1-3)

- ⤴ The Guess What? Game offers a simple alternative to activity three below. Select eight students as volunteers and take those eight outside the classroom. Tell each student they will be demonstrating a good hygiene behavior for the class using mime. The behaviors are: brushing teeth, washing face, clipping nails, washing clothes, ironing clothes, bathing, combing hair, and washing hands. Upon discussion with your volunteers, return to the classroom and ask each volunteer to perform the hygiene behavior they are assigned one-by-one. Encourage the remaining students to guess what hygiene behavior is being performed and discuss the appropriate tools for each behavior. For example, to clip our nails we need nail clippers or to bath we need water and soap.

Activity 3: Matching Game (20 minutes) (Grades 4-7)

- ⤴ This activity reinforces the good hygiene behaviors that were discussed in Anokosha’s story and also identifies how to perform them. Write the name of various hygiene materials in circles on the board. Find some light objects such as some small rocks that students can use to throw at the circle. Invite four volunteers to come to the front of the class and participate in the matching game. Read a hygiene activity to the students such as “Brushing your teeth”. The volunteers must identify the appropriate instrument used in this activity. They will then throw their rock at the circle that corresponds to the activity. The first student who hits inside the appropriate circle gets a point. After each hygiene activity you name, make sure to stop and ask the students if they agree with the player’s choice. If you can, try to provide a small reward, such as a piece of bubble gum, to the winning student. This will encourage participation in the future. Examples of hygiene behaviors and the corresponding instruments are below (adapted from The Joy of Learning).

Brushing teeth→ toothbrush or chewing sticks

Bath→ bucket

Combing hair→comb or brush

Washing face→ soap

Washing hands→ soap



Cutting your nails → nail clippers

Washing clothes → soap

Ironing clothes → iron

Activity 4: Good Hygiene Song (10 minutes) (Grades 1-3)

- ▲ This acts as another mnemonic device to help students remember their good hygiene behaviors. Sing it for the students with the appropriate miming, then encourage the students to join in. Make sure to sing the song several times so that students will remember it. You will need to add additional hygiene behaviors to the song (taken from “Joy of Learning”).

“This is the way we wash our face....we wash our face....we wash our face.

This is the way we wash our face...early in the morning.

This is the way we comb our hair, comb our hair... early in the morning

This is the way we brush our teeth, brush our teeth ...early in the morning.

This is the way we cut our nails, cut our nails... early in the morning.”

Activity 5: Hygiene Passport (45 minutes) (Grades 4-7)

- ▲ The hygiene passport is a fun and interactive document that allows each child to track their personal hygiene practices and take notice of sanitary conditions at their home. A sample hygiene passport is located in the toolkit for this manual.

Refer to Toolkit

1.9 Hygiene Passport

If you don't have the resources to photocopy the hygiene passport and distribute it to students you can ask students to draw their own using simple notebook paper. The hygiene passport contains the following components (Adapted from the Institut Pasteur's online activity guide):



Illustration 11: Example of a "hygiene passport"

- ▲ Page 1: title, student's name, a student's drawing of themselves
- ▲ Page 2: the student's personal hygiene agreement. (This should be a written statement of how the student will improve his/her personal hygiene.)
- ▲ Page 3: Student's drawing of a map of their home that includes where they store water, nearest place for excreta disposal, where the family cooks and baths
- ▲ Page 4: A chart that tracks the student's progress on their personal hygiene agreement
- ▲ Pages 5-8: Open pages. The teacher can decide what information can be added to the passport. Some good examples might include: The Six F's poem, a list of all the tools they need for good personal hygiene, etc.

It will probably not be possible to complete the whole hygiene passport in 45 minutes, but this is a fun activity that you can ask the students to return to at a later time.

3.13 Session 13: Maintaining My Healthy Body

Teacher Information Sheet

How Can I Evaluate My Students' Knowledge?

This last session of the training manual is designed to evaluate the knowledge students gained. In order to have a clear picture of students' retention, it is critical that you use an open-ended evaluation tool in which students recall information organically and unprompted. Some of the tools you can use include: storytelling, pictures, quiz games, songs, or poems. In testing this manual, the writer found that a quiz game served as a fun, participatory method by which the facilitators were able to evaluate the knowledge of each and every student and encourage competition among them. Thus, a quiz game is described in the session below.

What Are The Key Points My Students Should Remember?

- Health is essential to quality of life and should be protected. Students who practice good health behaviors will perform better in school.
- Knowing their water sources at home and school is the first step students can take to assure they drink clean and safe water.
- Generally, protected water sources provide suitable drinking water while unprotected sources do not.
- Contamination can occur at any point in the water chain from collection at the source to water disposal.
- Common water disinfection methods include use of WaterGuard, Aquatabs or boiling.
- Diarrhoeal diseases can be prevented by consuming clean and safe water and food.
- The universal symptoms of diarrhoeal diseases include fatigue, weakness and diarrhoea.
- Diarrhoeal diseases can be treated with sugar salt solution.
- Diarrhoeal diseases spread via the 6 F's: feces, flies, fields, fluids, fingers, and food.
- Students should always defecate in a latrine and take responsibility for cleaning it weekly.
- There are two proper ways to dispose of litter: by burying or burning it.
- The components of the rainwater harvesting system and the function of each part.
- How to prevent contamination of each component of the system.
- The roles and responsibilities of everyone at the school vis-à-vis the tank.
- Student's own role in protection and care of the tank.
- Good personal hygiene habits.
- Critical times for hand washing and the appropriate hand washing methods.

Instructions: *As the concluding session in the manual, this module can be used as an evaluation tool for the teacher to see what knowledge students have gained and where there are gaps. Where important information is missing from the students' understanding, teachers should return to those sessions to reiterate the message.*

Outline and Activities

Objectives:

1. Students are able to summarize the most important themes from the training manual.

Time Allowance:

60-90 minutes

Materials:

Notebook paper, pens, chalk

Activities:

Icebreaker (15 minutes)

- ⤴ Present the thirteenth image of Ronaldo [Refer to Toolkit: Illustration 13: Ronaldo asking students to remember what they have learned] to students. In this picture, Ronaldo waves goodbye. Invite a student to read Ronaldo's message before the class.

Activity 1: Lessons from Ronaldo (Grades 1-3) (60 minutes)

- ⤴ Students should reflect on all the important lessons they learned from Ronaldo and the water, sanitation, and hygiene training they received. Ask students one-by-one to state the information they learned from Ronaldo and the water, sanitation, and hygiene training. Prompt students to these ends by asking them to list the sessions they remember and the key messages from Ronaldo. Once students have concluded their recapitulation you should be able to identify patterns in students' knowledge as well as gaps.

Activity 2: My Action Plan (60 minutes) (Grades 4-7)

- ⤴ This open-ended activity enables students to reflect on the lessons they have learned throughout the training. Ask students to list all the new information they learned by writing it out on a piece of paper. Students will then present their thoughts to the class one-by-one. If students struggle to remember the activities they undertook, prompt them with what you consider to be the most important messages. This activity can be made more fun and interactive by creating a space for competition among the students and rewarding points to students who you judge have retained the most information.

Ask students to write an "action plan" for how they will stay healthy in the future. The action plan doesn't have to be a written document per say, rather it can be a song, role play, poem etc. in which students express their goals for maintaining health and the processes by which they plan to do so. Following the students' preparation of their action plans, ask them to present for the class. At this time, try to identify patterns in students' knowledge as well as gaps.





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